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EDUCATION SERIES 8

THE KIND OF SCHOLARSHIP RECORDS TO BE KEPT IN SCHOOLS

BY

MAX F. MEYER

*Professor of Experimental Psychology
University of Missouri*



UNIVERSITY OF MISSOURI
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The Kind of Scholarship Records to be Kept in Schools.

The scholarship records of any school should permit one to find, in an exact and economical manner and on short notice, (1) the grades received by each *pupil* in each subject; (2) the grades given by each *teacher* during the whole or any fractional period of the years of his or her employment in the school; (3) the grades assigned in any particular *subject* to all the members of a class, for example in arithmetic in the seventh grade of a certain elementary school during a certain year, or in ancient history in a certain high school during a certain year.

It is not asserted that the acquisition of any other data than those mentioned is undesirable, but merely that the above three kinds of data are especially desirable. Any school administration wanting additional data would simply have to amplify the original records in such a manner that the additional data could be extracted from them.

The three kinds of data specified should be recorded on loose filing cards, because such cards can be arranged easily in various groups for the purpose of deriving new kinds of data from them. To facilitate handling, the three sets of cards should be of the smallest standard filing size that permits placing on each card all of the entries likely to occur during the life of the card.

On each card of the first set (see figure 1) should be entered in successive columns from left to right, (1) each subject of instruction during any one year; (2) the number of the year; (3) the name of the teacher of that subject; (4) the grade assigned to the pupil; and further, of course, any other facts desired to be kept on record. The next line should contain the corresponding data for another subject-matter of instruction, and so on. For the same school all these cards ordinarily should be kept in one file and arranged alphabetically according to the names of the pupils.

School:.....			
Pupil:.....			
Subject of Instruction	Year	Teacher	Final Grade
To be continued below as needed.			

FIGURE 1.

In the second set of records (see figure 2) each card should contain, at the top, in exactly the same location, the name of a particular teacher. Successive columns from the left to the right should show (1) the year; (2) the subject taught; (3) the class of the school in which the subject was taught; (4) the absolute numbers of grades assigned to the class in the subject, recorded in the same number of columns as the number of grades or marks officially adopted by the school; and (5) in an equal number of columns, the percentage which the number of each grade is of the whole number of grades assigned to the class in the subject. The next line should contain the corre-

School:.....												
Teacher:.....												
Year	Subject of Instruction	Class	E	S	M	I	F	%E	%S	%M	%I	%F
To be continued below as needed.												

FIGURE 2.

sponding data for another subject, year, class, etc., for the same teacher. Each school, therefore, should keep as many cards of this kind on file as it employs teachers. As new teachers are employed, new cards should be added. The old cards should be preserved for some years after a teacher has ceased to be employed by the school.

In the third set of records (see figure 3), each card should contain, at the top, a fourfold heading: the name of the school, the year, the name of the class ("junior" or "fifth grade"), and the name of the subject-matter, each of these four placed in a corresponding location on all the cards in a definite blank space provided for each of the four items. Below should be found two lines, one for the absolute number of grades, and the other for the percentage which the number of each grade is of the whole number of grades given. The first column should contain the numbers, actual and percentage, of the "A" grades; the second column, those of the "B" grades; and so on, in the same number of columns as the number of marks officially adopted by the school. At the bottom there should be a blank for the name of the teacher.

School:.....						Year:.....						
Class:.....												
Subject of Instruction:.....												
Grades		E	S	M	I	F						
Actual Number												
Per Cent												
Teacher:.....												

FIGURE 3.

The cards of the third set should ordinarily be filed according to the year. Within the set of each year the cards should be arranged so that one class comes first, another following, and so on. Furthermore, each group of the same class should have

an alphabetical sub-arrangement according to the subject-matter. Temporarily, however, the cards could be grouped together differently, if particular data are to be extracted. For example, all cards of the same subject-matter should be grouped together for several or even for all the classes of the school, and even for a period of several years. One could thus, for example, by adding together the corresponding figures of each card, easily give an answer to this question: In English, in the junior and senior classes of a certain high school, during the years from 1910-11 to 1913-14, how many times has the grade "A" been given, how many times the grade "B," and so on? After the new arrangement has served its purpose, the cards should be redistributed according to the normal plan.

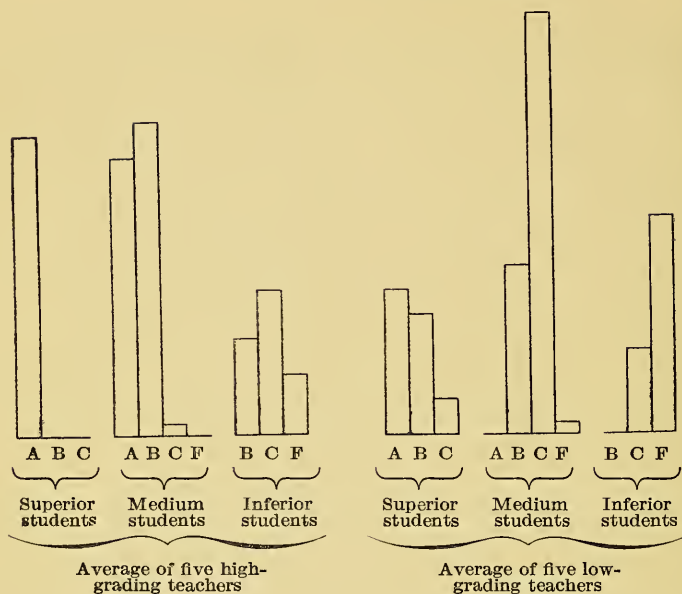
It is clear that the first set of records will be valuable especially to those whose interests center in the individual pupils and the progress made by them. The second set of records will be valuable especially when anybody needs information as to how the individual teacher performs his or her duties. Such information will frequently be needed by the principal, the superintendent, the school board. The third set of records will be valuable especially when information is needed about the efficacy of instruction in a whole school or a whole school system. Such information will be needed by superintendents, local or state, by school boards, and by the officers of higher institutions of learning receiving their pupils from the school or school system in question. Any one having a complete system of records of this kind at his disposal will soon be surprised, not only at its helpfulness in meeting demands and inquiries coming from the outside, but at its suggestiveness in calling the administration's attention to problems of which nobody had thought previously.

One of the first discoveries which the teacher, principal, or superintendent, keeping scholarship records, will undoubtedly make is this: that there seems to be something wrong with the original, individual grade reports. It will appear, for example, by comparing the grades or marks given by various teachers, that in a certain group of pupils, large enough to represent an average class made up of some excellent, some poor, and a good many ordinary pupils, one teacher gives proportionately a much

larger number of high grades than another. The grade "A" (or, say, 90-100, if these are the symbols used by the school) may be found to have been given approximately to three-tenths, or thirty per cent, of that group of pupils by one teacher, and to only one-twentieth, or five per cent, by another teacher. Of course, this does not mean that the latter teacher was a poorer teacher than the former. No teacher would inform other people in this naive manner that he is a poor teacher. The fact mentioned simply indicates that one teacher had an idea of what "A" meant differing from that of the other teacher. There is nothing strange in this. Rather, it would be miraculous if the meaning of "A" were the same in two persons when all that they had been informed about the meaning of "A" was that it was the highest grade, "B" the second grade, "C" the third, and so on.

About eight years ago, when in the University of Missouri interest was first taken in this matter, facts were found no better than those of the example above. The grades given by forty University of Missouri teachers, all having rather large numbers of students, were compared. The accompanying figure compares the average grades of the five teachers representing the one extreme of the forty with the average grades of the five representing the other extreme. For the sake of a better comparison, the students are divided into three groups. The first group includes the best quarter of all the students. These are called superior students. The second group includes that half of the students which has as many better students above as poorer students below. These are called medium students. The third group includes the poorest quarter of all the students. They are called inferior students. At the time when this comparison was made, three passing grades, called "A," "B," and "C," were used in the University. Now look at the figure on page 8.

All the superior students received the grade "A" from the high-grading teachers. But the low-grading teachers gave the same class of students very different grades. Less than one-half received "A." An almost equal number received "B." And not an inconsiderable fraction of the students received even



"C." Now let us look at the grades received by the medium students. The high-grading teachers reported nearly one-half of this class of students as "A," one-half as "B," and an insignificant fraction as "C." But the low-grading teachers reported none as "A," less than one-third as "B," more than two-thirds as "C," and a few even as failures. Let us further look at the grading of the inferior students. The low-grading teachers reported more than two-thirds of them as failures, less than one-third as "C." But the high-grading teachers reported only one-fifth of these students as failures, about one-half as "C," and three-tenths even as "B."

Think of the government of a nation, prescribing that each citizen pay an income tax, but leaving it to each citizen's notion to determine what percentage of his income he ought to contribute. Each citizen would then grade, so to speak, by the amount of tax he paid, not the amount of his income, but his moral and social convictions. The treasury department would then have, in the list of the tax payers, first one who is willing to contribute, say ninety-seven per cent, then one who believes

in contributing, say ninety-four per cent, and so on to the most miserly citizen. The treasury department, however, does not want this. It wants a list of the taxpayers according to income, not according to willingness to pay. We would laugh at a government requiring each citizen to pay an income tax, but failing to state what percentage of the income must be paid. We should likewise laugh at a school administration telling its teachers to report some "A" grades, some "B" grades, some "C" grades, and so on, but failing to state the percentage of "A" grades, "B" grades, "C" grades, and so on. Each teacher, in reporting, would then unwittingly grade, not his pupils so much, but rather himself, his own notion of what ought to be done. That is, one would report that according to his conviction a teacher ought to report only, say, six per cent "A" grades; another would express his conviction that a teacher ought to report, say, twelve per cent "A" grades; a third would grade himself as believing in eighteen per cent "A" grades; and so on to the most liberally grading teacher. But the school administration does not want its teachers thus to grade themselves. It wants them to grade their pupils, so that one may tell who is the best kind of scholar, who a less good scholar, and who a very poor scholar.

Any school administration keeping scholarship records will soon find out to what extent its teachers grade their own convictions rather than the scholarship of their pupils. Divergences in the percentage of each grade among the several teachers will indicate whether the teachers have the same or different notions of the meaning of each grade. If the divergence is considerable, the practical question is how to reduce it. It is clear that it ought to be brought to the attention of those teachers who report, say, too many B's and too few C's, that they diverge thus from the majority of their colleagues and how much they diverge.

This may or may not be sufficient to bring about the desired uniformity of grading. The teachers, being reasonable beings, may understand that scholarship records kept by the school are worthless, if, instead of being scholarship records, they are a confused kind of record of what the several teachers believe the various grades ought to mean. But even reasonable beings are sometimes unreasonable. Those being in the minority might

think that, since majorities are not necessarily always right, here is such a case in which the minority is right, and might regard it as their duty to stick to their convictions.

It is preferable, therefore, to avoid the raising of such questions altogether by adopting officially definitions of the grades which every teacher must accept in taking office. The question then is this: How can the administration of a school or school system define the meaning of the grades? This question is easily answered. As has been seen, the lack of definition of the grades is likely to result in the records showing an unduly high or unduly low percentage of certain grades. The simplest way of defining any grade is therefore obviously to state to what percentage of the whole number of pupils graded should be assigned this grade, and to what percentage of the whole number of students graded should be assigned a higher grade, and to what percentage should be assigned a lower grade. In other words, each grade is defined by the *relative frequency* of its occurrence among a hundred grades, that is, *per centum*.

This is not only the simplest way of defining scholarship grades; it is at present, and undoubtedly will be for a long time, the only one universally applicable. Of course, absolute standards, units of measurement, are desirable in education as in any science; and indeed a few have been worked out with fair success for certain kinds of subjects, as writing, composition, and arithmetic. But for universal application to a school system, absolute units are as yet out of the question.

It is of minor importance what the frequencies are which are officially adopted as definitions of the grades. At the same time, however, it means a saving of time and energy in comparing different schools if these schools use the same or about the same frequencies. The University of Missouri uses the following: The grade "Medium" is defined as indicating that in a class of one hundred students the student so graded would be found among the students above whom there are twenty-five better ones and below whom there are twenty-five poorer ones. If the classes are small, the grades should conform to this distribution in the long run. The best fourth of the students are called superior and the poorest fourth are called inferior. Those above are

subdivided so as to give to the best (say, four or five among each twenty-five) the grade of "Excellent," to the others simply the grade of "Superior." Those below also are subdivided so as to give to the poorest among each twenty-five the grade of "Failure," to the others simply the grade of "Inferior."

The reasons for this particular system will be stated briefly. It is better to have an odd number of grades than an even number of grades. An even number of grades, for example six, would divide an array of students in the middle. But this is the very place where a division point is least needed. Divisions should be made where people vary greatly. Average people, however, vary least one from another. An odd number permits giving one grade to the large group of average students. To choose one-half of all as the frequency of this group, is simply to follow the custom prevailing among statisticians. The one-quarter above and the one-quarter below have been subdivided because three grades seemed to be too few to do justice to the students. On the other hand, seven, the next higher odd number after five, seem to be too many. Experiments which have been made seem to indicate that no greater accuracy is gained by using seven or more grades. When seven grades are used it becomes almost a mere matter of chance whether a student is placed in the first rather than in the second group, or another student in the second rather than in the third, and so on. The ability of the teacher to make distinctions of scholarship soon reaches its limit when an attempt is made to distinguish more than five classes.

It is evident that the original task of the teacher, using such a grading system with defined grades, consists in *ranking* his or her pupils; that is, in putting down one as the best, another as the second best, a third one as the third best, and so on, down to the very poorest in the class. Having done this, the teacher divides the whole array into five groups, according to the frequencies given in the official definitions. If the class is small, the teacher must use the best judgment possible in assigning grades so that *in the long run* the distribution of the grades given will be in accordance with the definitions. If the judgment of

a teacher, or of all the teachers of the school, is bad in this respect, it will soon show in the cumulative scholarship records.

School grades do, and ought to, indicate simply a pupil's rank among other pupils doing the same kind of work. Rank is not used here in the individual sense that Mary Gray ranks between John Brown and Frank White, which may be true, but is of minor importance; but it is used in the general sense, which alone is important, that Mary Gray among thousands of pupils would rank in the group of the average, or in the group of the superior ones, or in the group of the inferior ones. This is what parents want and ought to be able to know, in order to decide whether they ought to make sacrifices to send Mary to high school or to college. This is also what the college wants to know, before it admits a high school graduate. But this information can be obtained with sufficient reliability only from a school which keeps careful scholarship records.

There are some practical questions of secondary importance upon the discussion of which we cannot enter here. One question, however, might be touched upon. It is often asked whether a grading system with grades defined by their frequencies can be applied to selected classes. The answer is this. It depends on the purpose for which the class was selected. If the selected class is doing the same kind of work which an unselected class is doing, then the selected class should obtain an increase in the number of higher grades corresponding to the degree of selection. But if this class was selected for the very purpose of doing selected work, then the normal frequencies should be strictly applied. Otherwise, we would once more indicate by the grading assigned the fact already known, that these individuals were selected. But we would fail to indicate what is really important, namely, who can do this selected work best, who next best, who less well, and who least well. For example, if college students were selected from high school students in order to do in college some further high school work, then indeed college students would deserve higher grades than high school students. But they have been selected to do selected work, college work; and therefore the same system of grading is applicable to the

college as to the high school and to the elementary school and to each subdivision of these institutions.

For the same reason the same percentages of the grades are, in general, applicable to a class in a subject which the teacher considers as unusually hard or unusually easy. It is pedagogically wrong to teach any subject in such a manner that it is unusually hard or unusually easy. Any subject in any class ought to be taught in a manner suited to the majority of the members, neither the worst nor the best, of the class. Instead of applying a different method of grading, the teacher ought to apply a different method of teaching; that is, a method better adapted to the majority of his class. If, however, the class has been selected—whether intentionally or unintentionally—with the result that only scholars unusually poor in the subject are found in the class doing unselected work, then the percentages of the lower grades may be increased. Or if as the result of selection only scholars unusually good in the subject are found in the class doing unselected work, then the percentages of the higher grades may be increased. But the cases are exceedingly rare in which the conscientious teacher, trying to prove that the membership of his class is unusual, will find this proof forthcoming.

Further information about practical and theoretical questions concerning scholarship records, grading systems, and examination methods helpful to sound grading, may be obtained from the literature given in the appended bibliography, which is arranged in chronological order.

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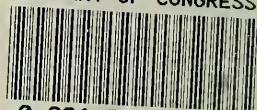
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